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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/829,620

04/22/2004

Blaine D. Johs

7329

7590

09/26/2006

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EXAMINER

AKANBI, ISIAKA O

ART UNIT

PAPER NUMBER

2877

DATE MAILED: 09/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/829,620	JOHS ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Isiaka O. Akanbi	2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 13 June 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-4 and 12 is/are allowed.
- 6) ☒ Claim(s) 5-11 and 13-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Amendment*

The amendment file 13 June 2006 has been entered into this application.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5-7, 10-11, 13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jellison, Jr. et al. (5,956,147).

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jellison. The reference of Jellison teaches of the spectroscopic ellipsometer system, comprising a source of polychromatic electromagnetic radiation (10), a polarizer (12) which remains fixed in position during data acquisition, a stage for supporting a sample (14) system (fig. 1), an analyzer which remains fixed in position during data acquisition (col. 1, line 55-64), and a multi-element spectroscopic detector system (17), said spectroscopic ellipsometer system further comprising at least one rotating or rotatable compensator means (col. 1, line 45-50) for discretely, sequentially, modifying a polarization state of a beam of electromagnetic radiation provided by said source of polychromatic electromagnetic radiation through a plurality of polarization states, said rotating or rotatable means for discretely, sequentially, modifying a polarization state of a beam of electromagnetic radiation provided by said source of polychromatic electromagnetic radiation through a plurality of polarization states being present at least one location selected from the group consisting of: between said polarizer (12) and said stage for supporting a sample (14) system and between said stage for supporting a sample system and said analyzer (16) and positioned so that said beam of electromagnetic radiation transmits therethrough in use, further Jellison discloses said spectroscopic ellipsometer system further comprising at least one multiple element lens present at least one location selected from the group consisting of:

between said polarizer (12) and said stage for supporting a sample (14) system so that said beam of electromagnetic radiation transmits therethrough in use and said at least one compensator means comprising at least one rotatable compensator selected from the group consisting of: a) a selection from the group consisting of: a single element compensator and a multiple element compensator (col. 1, line 45-48) and a focusing lens located between said polarizer and said stage for supporting a sample system (col. 5, line 8-11). However the reference of Jellison is silent regarding the focusing lens as being a multi-element focusing lens. It would have been obvious to one having ordinary skill in the art at the time of invention to use a multi-element focusing lens that is located between said polarizer and said stage for supporting a sample system for the purpose of reducing chromatic aberration and to provide a better focus.

As to claim 6, Jellison discloses the claimed invention, as applied to claim 5 above, comprising a focusing lens (13) and suggested anisotropic sample (col. 1, line 55-56). The reference of Jellison is silent regarding said at least one multiple element lens demonstrates birefringence. It would have been obvious to one having ordinary skill in the art at the time of invention to provide at least one multiple element lens demonstrates birefringence for the purpose of measuring two independent parameters.

As to claim 7, Jellison discloses the claimed invention, as applied to claim 5 above, comprising a focusing lens (13) between said polarizer and said stage for supporting a sample system (col. 5, line 8-11) and suggested additional optical elements located both between said polarizer (PSG) and said stage for supporting a sample (14) system and between said stage for supporting a sample system and said analyzer (16)(fig. 1)(col. 1, line 55-63). The reference of Jellison is silent regarding a collimating lens between said stage for supporting a sample system and said analyzer and said multi-element lenses being characterized by a selection from the group consisting of: (y) at least one thereof is made of two elements, one of said elements being made of fused silica and the other of  $\text{CaF}_2$ . It would have been obvious to one having ordinary skill in the art at the time of invention to provide a collimating lens between said stage for supporting a sample system and said analyzer for the purpose of providing parallel beam with accuracy. Additionally, the use of lens that is made of two elements, one of said elements being made of fused silica and the other of  $\text{CaF}_2$  is known in the art. Therefore it would have been obvious to one having ordinary skill in the art at the time of invention to use lens that is made of

two elements, one of said elements being made of fused silica and the other of  $\text{CaF}_2$  for the purpose of correcting chromatic aberration.

Regarding claim 10, Jellison discloses a spectroscopic ellipsometer system comprising a source (10) of a polychromatic beam of electromagnetic radiation, a polarizer (12), a stage for supporting a material system (14)(fig. 1), an analyzer (13/16), a dispersive optics and at least one detector system which comprises a multiplicity of detector elements (17)(col. 1, line 55-68), said spectroscopic ellipsometer system further comprising at least one compensator(s) positioned at a location selected from the group consisting of: before said stage for supporting a material system, after said stage for supporting a material system (col. 1, line 45-48), such that when said spectroscopic ellipsometer system is used to investigate a material system present on said stage for supporting a material system at least one of said at least one compensator(s) is caused to continuously rotate while a polychromatic beam of electromagnetic radiation produced by said source of a polychromatic beam of electromagnetic radiation is caused to pass through said polarizer and said at least one compensator(s), said polychromatic beam of electromagnetic radiation being also caused to interact with a material system on said stage for supporting a material system, pass through said analyzer and interact with said dispersive optics such that a multiplicity of essentially single wavelengths are caused to simultaneously enter a corresponding multiplicity of detector elements in said at least one detector system and a lens present at least one location selected from the group consisting of: between said polarizer (12) and said stage for supporting a sample system (14). The reference of Jellison is silent regarding at least one multiple element lens present at least one location selected from the group consisting of: between said polarizer and said stage for supporting a sample system. The use of lens with multiple element lenses is known in the art. Therefore it would have been obvious to one having ordinary skill in the art at the time of invention to use a multi-element lens that is located between said polarizer and said stage for supporting a sample system for the purpose of reducing chromatic aberration and to provide a better focus.

As to claim 11, Jellison discloses the claimed invention, as applied to claim 10 above, comprising a focusing lens (13) between said polarizer and said stage for supporting a sample system (col. 5, line 8-11) and suggested additional optical elements located both between said polarizer (PSG) and said stage for supporting a sample (14) system and between said stage for supporting a sample system and said analyzer (16)(fig. 1)(col. 1, line 55-63). The reference of Jellison is silent regarding at least one multi-element lenses that (y) is made of two elements,

one of said elements being made of fused silica and the other of  $\text{CaF}_2$ . It would have been obvious to one having ordinary skill in the art at the time of invention to use lens that is made of two elements, one of said elements being made of fused silica and the other of  $\text{CaF}_2$  for the purpose of correcting chromatic aberration.

As to claims 13 and 15, Jellison discloses a Chamber configured as a selection from the group consisting of:

it comprising at least one chamber (29) region in which is present polarization state generator (12) comprising component(s) prior to said material system (14), said material system, and polarization state detector (17) comprising component(s) after said material system (fig. 1).

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 8-9 and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Jellison, Jr. et al. (5,956,147).

As regard to claim 8, Jellison discloses a spectroscopic ellipsometer system comprising of the following:

a) a source (10) of a spectroscopic beam electromagnetic radiation;

b) a polarizer element (12);

in either order elements c and d:

c) optionally a rotating or rotatable compensator element (col. 1, line 45-48), e) a material system (fig. 1) and further in either order elements g) optionally a rotating or rotatable compensator element, h) an analyzer element (12/16) and i) a spectroscopic detector System (17) and at least one of said optional rotating or rotatable compensator elements in c or g being

present and oriented so that a spectroscopic electromagnetic beam provided by the source thereof transmits therethrough along its axis of rotation (fig. 1)(col. 1, line 37-63).

As to claim 9, according to claim 8, Jellison discloses beam directing means (13) and/or windows located at least one selection from the group consisting of: a) between said source (10) of a spectroscopic beam electromagnetic radiation and said material system (14) and b) between said Material system and said detector system (17)(fig. 1)(col. 5, line 8-18).

As to claim 14, Jellison discloses a Chamber configured as a selection from the group consisting of:

it comprising at least one chamber (29) region in which is present polarization state generator (12) comprising component(s) prior to said material system (14), said material system, and polarization state detector (17) comprising component(s) after said material system (fig. 1).

### ***Allowable Subject Matter***

Claims 1-4 and 12 are allowable

As to claim 1, the prior art of record, taken alone or in combination, fails to disclose or render obvious change in the intensity of and/or the ratio of and/or the phase between orthogonal components in a spectroscopic beam of electromagnetic radiation which is caused by interaction with a material system, in combination with the rest of the limitations of the claim. Claims 2-4 and 12 are allowable by virtue of their /its dependency.

### ***Response to Arguments***

Applicant's arguments/remarks, see pages 41-57, filed 13 June 2006, with respect to the rejection(s) of claim(s) 1-15 under 35 U.S.C. 102(b) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made.

### ***Additional Prior Art***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The references listed in the attached form PTO-892 teach of other prior art of a

Art Unit: 2877

system for monitoring change that may anticipate or obviate the claims of the applicant's invention.

### **Conclusion**

### **Fax/Telephone Information**

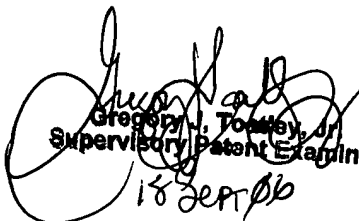
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Isiaka Akanbi whose telephone number is (571) 272-8658. The examiner can normally be reached on 8:00 a.m. - 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley Jr. can be reached on (571) 272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Isiaka Akanbi

September 5, 2006

  
Gregory J. Toatley, Jr.  
Supervisory Patent Examiner  
18 Sept 06